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Millwrights install, dismantle, repair, and replace machinery and heavy equipment in manufacturing firms that use assembly lines, as well as at construction sites. They generally work for a contracting company, performing jobs at different factories and locations as contracts come and go. Before the machines even get to the factory or construction site, the Millwright is there to consult with the production managers and others to determine the optimal placement of machines in a plant. When this placement requires building a new foundation, Millwrights either prepare the foundation themselves or supervise its construction.

Millwrights measure angles, material thickness, and small distances, with tools such as squares, calipers, and micrometers. When a high level of precision is required, devices such as lasers and ultrasonic measuring tools may be used. Millwrights also work with hand and power tools, such as cutting torches, welding machines, and soldering guns, and with metalworking equipment, including lathes and grinding machines.

The wide range of facilities and the development of new technology require Millwrights to continually update their skills—from blueprint reading and pouring concrete to diagnosing and solving mechanical problems.

**Tasks**

- ▶ Position steel beams to support bedplates of machines and equipment, using blueprints and schematic drawings, to determine work procedures.
- ▶ Signal crane operator to lower basic assembly units to bedplate, and align unit to centerline.
- ▶ Align machines and equipment, using hoists, jacks, hand tools, squares, rules, micrometers, and plumb bobs.
- ▶ Assemble and install equipment, using hand tools and power tools.
- ▶ Insert shims, adjust tension on nuts and bolts, or position parts, using hand tools and measuring instruments, to set specified clearances between moving and stationary parts.
- ▶ Connect power unit to machines or steam piping to equipment, and test unit to evaluate its mechanical operation.
- ▶ Replace defective parts of machine or adjust clearances and alignment of moving parts.
- ▶ Repair and lubricate machines and equipment.

Detailed descriptions of this occupations may be found in the Occupational Information Network (O\*NET) at [online.onetcenter.org](http://online.onetcenter.org).

# Millwrights

## Important Skills, Knowledge, and Abilities

- ▶ **Mechanical** — Knowledge of machines and tools, including their designs, uses, repair, and maintenance.
- ▶ **Equipment Selection** — Determining the kind of tools and equipment needed to do a job.  
**Repairing** — Repairing machines or systems using the needed tools.  
**Installation** — Installing equipment, machines, wiring, or programs to meet specifications.
- ▶ **Troubleshooting** — Determining causes of operating errors and deciding what to do about it.
- ▶ **Mathematics** — Using mathematics to solve problems.
- ▶ **Information Ordering** — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
- ▶ **Near Vision** — The ability to see details at close range (within a few feet of the observer).
- ▶ **Manual Dexterity** — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.
- ▶ **Wrist-Finger Speed** — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.
- ▶ **Problem Sensitivity** — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.

## Work Environment

Most Millwrights work full-time, sometimes in shift work, sometimes outdoors, although working conditions tend to vary from job to job. The work environment can be noisy and there is always a risk of injury involved in working with heavy machinery.

## California's Job Outlook and Wages

The California Outlook and Wage table below represents the occupation across all industries.

Standard Occupational Classification	Estimated Number of Workers 2004	Estimated Number of Workers 2014	Average Annual Openings	2006 Wage Range (per hour)
<b>Millwrights</b> 49-9044	3,500	4,000	130	\$20.32 to \$30.24

*Wages do not include self-employment.*

*Average annual openings include new jobs plus net replacements.*

*Source: [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov), Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.*

## Trends

Despite projected slower-than-average employment growth, skilled applicants for Millwright positions should have good job opportunities, especially those with up-to-date skills in laser shaft alignment and vibration analysis. Nationally, about 6 in 10 Millwrights belong to labor unions, one of the highest rates of membership in the economy.

### Training/Requirements/Apprenticeships

Millwrights normally receive training for four years through apprenticeship programs that combine on-the-job training with classroom instruction or through community college coupled with informal on-the-job training. These programs include training in dismantling, moving, erecting, and repairing machinery.

Employers prefer applicants with a high school diploma or equivalency and some vocational training or experience.

#### Recommended High School Course Work

Courses in science, mathematics, mechanical drawing, computers, and machine shop practice are useful.

### Where Do I Find the Job?

Direct application to employers remains one of the most effective job search methods. Candidates for training or apprenticeship programs should apply directly to employers who employ Millwrights. Unions representing Millwrights also have information concerning apprenticeships and related matters.

Use the *Search for Employers by Industry* feature on the *Career Center* page at [www.labormarketinfo.edd.ca.gov](http://www.labormarketinfo.edd.ca.gov) to locate employers in your area. Search under the following industry names to get a list of private firms and their addresses:

- ▶ Oil and Gas Pipeline Construction
- ▶ Other Heavy Construction
- ▶ Power/Communication System Construction
- ▶ Sawmills
- ▶ Water and Sewer System Construction
- ▶ Wood Preservation

Search these **yellow page** headings for listings of private firms:

- ▶ Millwrights
- ▶ Machinery, Repairing
- ▶ Machinery Movers and Erectors
- ▶ Machine Shops

### Where Can the Job Lead?

Advancement for Millwrights usually takes the form of higher wages. Some advance to the position of supervisor or superintendent, while others may become self-employed contractors.

### Other Sources of Information

California Division of Apprenticeship Standards  
[www.dir.ca.gov/das](http://www.dir.ca.gov/das)

Northern California Millwrights, Local 102  
[www.millwrights102.com](http://www.millwrights102.com)

Union Millwrights' Local 1607, Los Angeles  
[www.unionmillwright.com/1607.html](http://www.unionmillwright.com/1607.html)

